

WHAT IS CLAIMED IS:

1. A method of making a battery electrode, the method comprising:
 - (a) forming a first layer comprising a cathode mixture on a substrate;
 - (b) removing the substrate from the first layer; and
 - (c) incorporating the first layer into the battery electrode.
2. The method of claim 1, wherein the cathode mixture is in the form of a slurry.
3. The method of claim 1, wherein the substrate comprises a material selected from a group consisting of a polymer, a metal, and paper.
4. The method of claim 1, wherein the substrate comprises a polymer.
5. The method of claim 1, further comprising:
forming a second layer comprising the cathode mixture; and
contacting the second layer with the first layer.
6. The method of claim 5, further comprising calendering the first and second layers.
7. The method of claim 5, further comprising calendering the first and second layers under heat.
8. The method of claim 5, wherein contacting the second layer with the first layer increases the density of the first and second layers.
9. The method of claim 1, further comprising contacting the separated first layer with a current collector.
10. The method of claim 9, further comprising bonding the separated first layer and the current collector under pressure.

11. The method of claim 9, wherein the current collector includes an electrically conductive binder.

12. The method of claim 1, further comprising laminating the first layer to a plurality of layers, each one of the plurality of layers comprising a cathode material.

13. The method of claim 12, wherein the cathode material is selected from a group consisting of a cathode active material, a binder, and a conductive aid.

14. The method of claim 1, wherein step (a) or step (b) is performed in a continuous process.

15. The method of claim 1, wherein steps (a) and (b) are performed in a continuous process.

16. A method of making a battery electrode, the method comprising:
(a) forming a first layer comprising a first cathode mixture on a substrate;
(b) removing the substrate from the first layer;
(c) laminating the first layer to a second layer comprising a second cathode mixture; and
(d) incorporating the laminated first and second layers into the battery electrode.

17. The method of claim 16, wherein the first and second cathode mixtures are substantially the same.

18. The method of claim 16, wherein the first and second cathode mixtures are different.

19. The method of claim 18, wherein the first and second mixtures have different chemical compositions.

20. The method of claim 16, wherein laminating includes calendering the first and second layers.

21. The method of claim 16, further comprising bonding the laminated first and second layers to a current collector.

22. A battery cathode having a thickness greater than about 100 micrometers.

23. A battery cathode having a current density greater than about $1\text{mA}/\text{cm}^2$.

24. A battery cathode formed of a plurality of layers, each layer comprising a cathode material.

25. The cathode of claim 24, wherein the cathode material is selected from a group consisting of a cathode active material, a binder, and a conductive aid.

26. The cathode of claim 24, wherein at least two of the layers have different porosities.

27. The cathode of claim 24, wherein at least two of the layers have different electronic conductivities.

28. The cathode of claim 24, wherein at least two of the layers have different chemical compositions.

29. The cathode of claim 24, wherein at least two of the layers have different concentrations of a binder.

30. The cathode of claim 24, further comprising a current collector in contact with one of the layers.

31. The cathode of claim 30, wherein the current collector comprises a conductive adhesive.

32. The cathode of claim 30, wherein the layers have increasing porosities relative to the distance from the current collector.

33. The cathode of claim 31, wherein the layers have increasing electronic conductivities relative to the distance from the current collector.

08935-249001 M-4965